Hardware Installation Manual

MEMOCAM® ZORRO (MZ-SERIES)

V7148001

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Document Version 01

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Manufacturer: Video Domain Technologies Ltd.
Model: MemoCam Zorro
Rated voltage(s): 12VDC
Current(s) (or power): 0.5 A

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This Class A/B digital apparatus complies with Canadian ICES-003.

Cet appareil numèrique de la classe A/B est conforme à la norme NMB-003 du Canada.

CE FCC

Changes or modifications not expressly approved by Video Domain could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

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1 Introduction

Congratulations on choosing MemoCam® Zorro, incorporating award-winning MemoCam® technology, as your security solution.

MemoCam Zorro replaces the widely used by cumbersome combination of separate recorder, PIR detector and camera equipment. With MemoCam Zorro you get a fully integrated system of quality Camera, DVR (Digital Video Recorder), Video Motion Detection (VMD), and PIR sensor, packaged in a standard PIR detector case - making it perfect for covert operations.

MemoCam Zorro is a user-friendly system that is easy to set up and use without special training. Being a solid-state device, it does not require daily maintenance.

MemoCam Zorro stores all images on a removable mini SD memory card. To analyze the recorded events on any PC/pocket PC, the mini SD card is removed from the MemoCam Zorro unit, and the images are downloaded using a standard mini SD card reader and the MemoCam software.

MemoCam Zorro is a reliable, secure system that will not let you down, with images dated, timed and watermarked for integrity. MemoCam is the system most trusted by important law enforcement agencies worldwide.

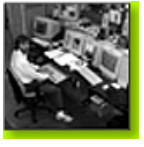
One or more stand-alone MemoCam Zorro units can be placed at different locations, and configured using the mini SD memory card.

MemoCam Zorro is fully controlled using the remote control device included in the package, which also has panic button functionality.

1.1 See What MemoCam®Zorro Can Capture

Office and Warehouse

- ❑ See who opened the locked drawer in your office.
- ❑ View pictures of anyone who was around that valuable package that disappeared.
- ❑ See who came into the office after hours and what exactly they were doing there.

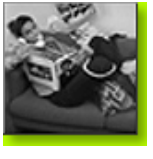


Convenience and Retail Stores

- ❑ Replace the unreliable time-lapse VCR with the maintenance-free MemoCam Zorro.
- ❑ See who goes behind the counter and who reaches into the cashier drawer.

Access Controlled Areas

- ❑ Verify that nobody but authorized personnel goes through that door.
- ❑ See which unauthorized people are entering.



Home

- ❑ See if the babysitter is spending more time with her boyfriend than with your baby.
- ❑ Find out what the A/C technician was looking for in your bedroom chest of drawers.
- ❑ Determine what set off the alarm and why the police couldn't find any entry marks.

Managers

- Make sure employees do not punch the clock for each other by matching picture time with time punched on the card.

Schools/Hotels/Hospitals

- See who's been pushing drugs in the school halls.
- Get the picture of who walked out of the employees' room with all their purses.
- Who opened the restricted medicine supply cabinet and removed prescription-only drugs.

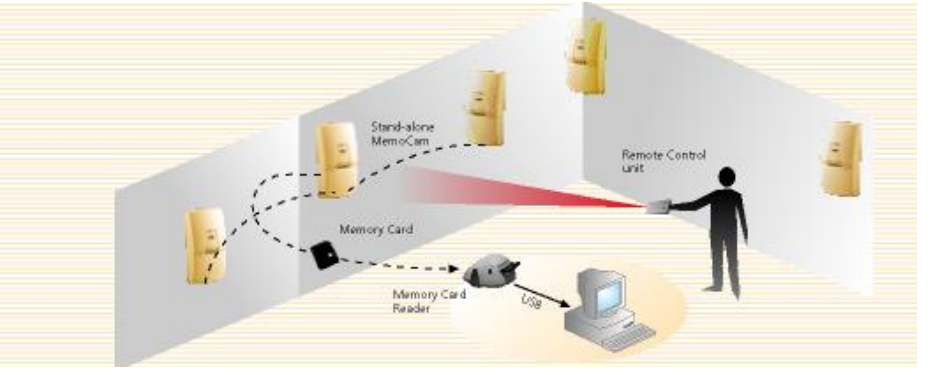


Figure 1: The MemoCam Zorro System

1.2 Features

The MemoCam Zorro Series features:

- Automatic set-up using the removable mini SD card.
- User-defined image quality, frame rate, recording time per event, delay between events, and more.
- Fixed or cyclic (oldest images replaced by the newest ones) recording modes.
- Pre-alarm recording.
- Image integrity protection.
- Internal weekly scheduler.
- Video Motion Detection (VMD) with selectable areas of interest.
- Video Out.
- RS-485 connection
- Remote Control unit also functioning as panic button.

The MemoCam software enables you to:

- View images as thumbnails or in a detailed list view
- Sort images by date and time
- View images from a specific time period
- Play, pause, fast-forward, and rewind images. In addition, you can view images frame-by-frame or as a slide show playback
- Verify frame integrity
- Export to the built-in image editor
- Export to AVI
- Control the MemoCam Zorro unit using the PC Serial Connection cable
- Configure the MemoCam unit using the removable mini SD card
- Print an image

and more.

Events recorded by the unit can be viewed on a PC with Windows 2000, ME, NT, XP or VISTA with Internet Explorer™ 5.0 (or higher), or a Pocket PC with Windows CE 3.0 (or higher).

Images are read from the mini SD card using a standard card reader and the MemoCam Application software.

1.3 Scope of this Guide

This guide gives an overview of the MemoCam Zorro unit, and describes how to install the unit and how to connect external devices to it.

1.4 Package Contents

The MemoCam Zorro kit includes the following items:

- ❑ MemoCam Zorro unit
- ❑ Mini SD memory card
- ❑ Swivel mounting bracket kit
- ❑ Power adaptor
- ❑ IR remote control unit and 2x AAA batteries
- ❑ Video output cable
- ❑ MemoCam Zorro Hardware Installation Manual (this manual)
- ❑ CD containing everything you need for installing your unit/s:
  - MemoCam Application
  - MemoCam Application User Guide
  - MemoCam Zorro Series Hardware Installation Manual (copy of this manual)
  - MemoCam Zorro Datasheet
  - MemoCam Accessories applications and documents

If any items are missing, please contact your local dealer.

2 Installing the Zorro Unit

This chapter explains how to install the Zorro unit, how to connect add-on devices that expand the functionalities of the unit, and how to connect multiple Zorro units to a host.

2.1 Description of Zorro Unit

The figures below show the physical components of the MemoCam Zorro unit and remote control device.

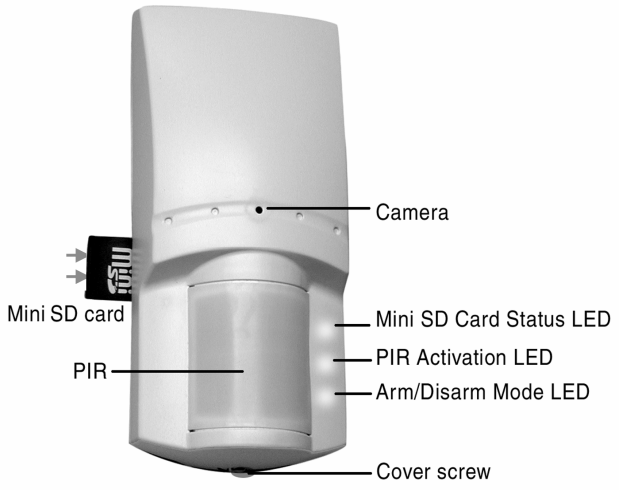


Figure 2: MemoCam Zorro Front View

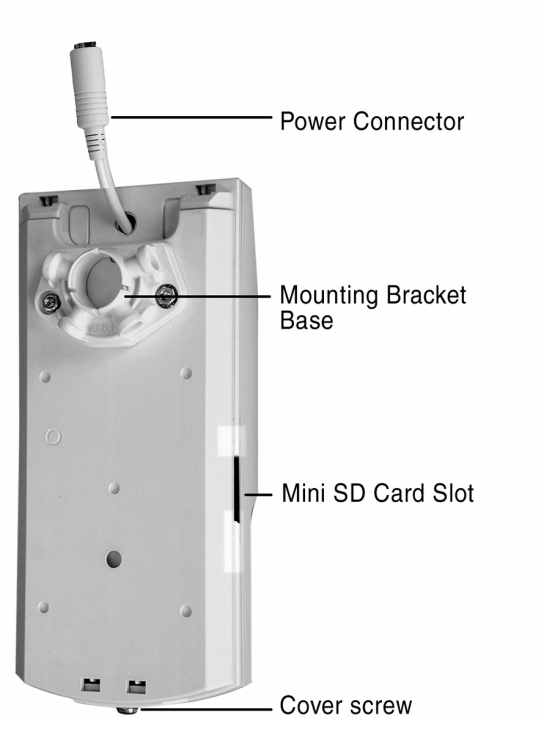


Figure 3: MemoCam Zorro Back View

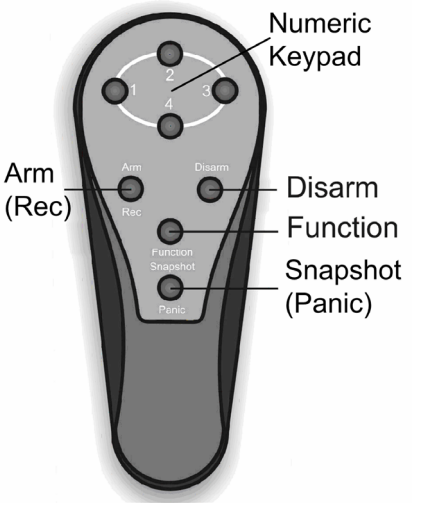


Figure 4: Remote Control Unit

2.2 Basic Unit Installation

MemoCam Zorro is a plug & play device that is simple to install.

Required Tools

- ❑ A screwdriver
- ❑ Two screws suitable for type of wall
- ❑ You may also need a drill and two screw anchors

♦ To install the unit:

1. Mount the unit.

   See *Mounting the Unit* on page 9

2. Connect the power supply.

   See *Connecting the Power Supply* on page 10.

3. Ensure that the mini SD card is installed. Note: The unit ships with the mini SD card already installed.

   See *Inserting the Mini SD card* on page 34.

4. Arm the unit using the remote control. When armed, the **Arm/Disarm** LED (bottom) is lit (orange).

   See *Arming the Unit* on page 31.

5. Record a snapshot to test the unit's field of view.

   See *Recording a Snapshot* on page 31.

6. View the images.

   See *Viewing the Images* on page 42.

7. Adjust the angle of the unit if necessary.

   See *Attaching the Unit to the Bracket* on page 10.

2.3 Mounting the Unit

Selecting a Mounting Location

Choose a location most likely to intercept an intruder. Make sure that the unit's power cord can reach a nearby wall plug. If necessary, an extension cord can be used.

The PIR is most sensitive in detecting sideways motion.

The unit performs best in steady light and stable temperature.

Avoid the following locations:

- ❑ Facing direct sunlight or light sources
- ❑ Facing areas subject to quick temperature changes
- ❑ Areas with air ducts or substantial air flows
- ❑ Facing areas with high light contrast

Mounting the Bracket

A swivel mounting bracket kit is included with the MemoCam Zorro unit. The swivel bracket base is already installed on the back cover.

1. For corner mounting, fasten the 15° prop to the back of the mounting bracket (B).

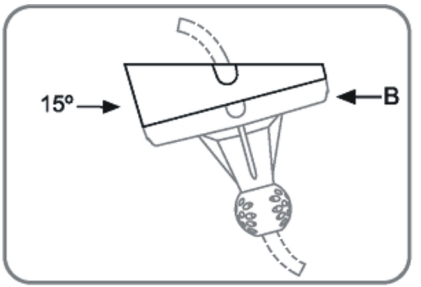


Figure 5: Fastening 15° Prop to Bracket

2. Place the wall-mount section of the mounting bracket (B) on the desired location on the wall, and mark the drill points through the two fastener holes.

3. Drill the holes (if necessary) and attach the bracket to the wall with two screws.

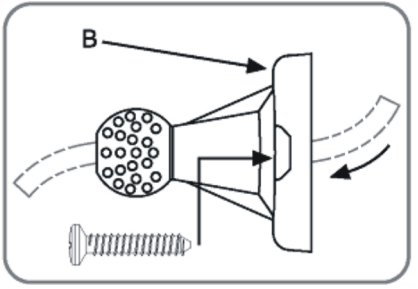


Figure 6: Fastening Bracket to Wall

Attaching the Unit to the Bracket

1. Attach the unit to the mounting bracket: clip the bracket base on the back of the unit onto the mounting bracket that you have already attached to the wall (B).
2. Adjust the angle of the unit and stabilize it with a single screw in one of the available holes.

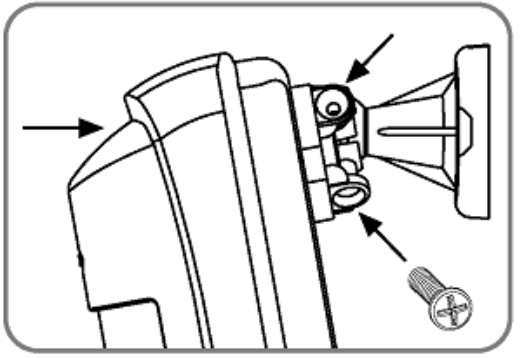


Figure 7: Stabilizing Angle of Unit

2.4 Connecting the Power Supply

1. Connect the power adaptor (supplied) to the power connector coming out of the MemoCam Zorro unit.

   See Figure 3 on page 7.

2. Plug the adaptor into a wall socket.

   The PIR activation LED (middle LED) blinks for 10 seconds. See Table 6 on page 33.

The MemoCam Zorro unit works only with the original power adaptor supplied with the unit.

2.5 Optional Add-Ons

MemoCam Zorro is a versatile security solution that supports many different applications.

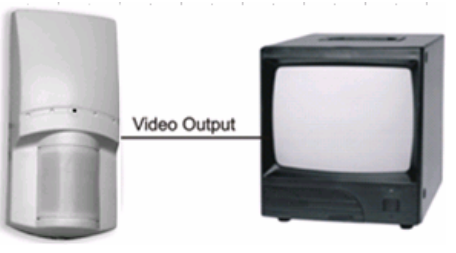
You can connect your MemoCam Zorro unit to various external devices, depending on your security needs.

This section gives you ideas for maximizing use of your Zorro unit, by connecting to the unit:

- ❑ External monitor
- ❑ Light / IR Illuminator
- ❑ Siren
- ❑ Arm/disarm control
- ❑ External contact
- ❑ Communication with a host

External Monitor

MemoCam Zorro models feature a video output interface that enables monitoring. The figure below shows a MemoCam Zorro unit connected to an external monitor.



Light or IR Illuminator

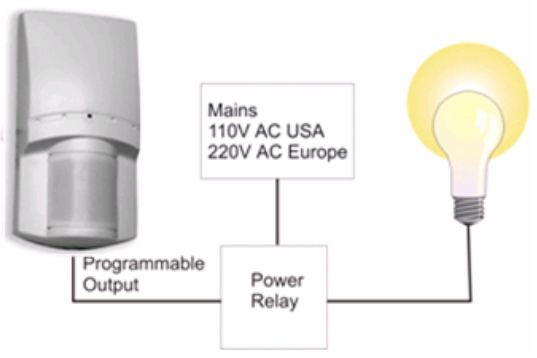
If you need to record video events in the dark, you will need to illuminate the area. You can illuminate the area using a:

- ❑ Light bulb
- ❑ InfraRed LED

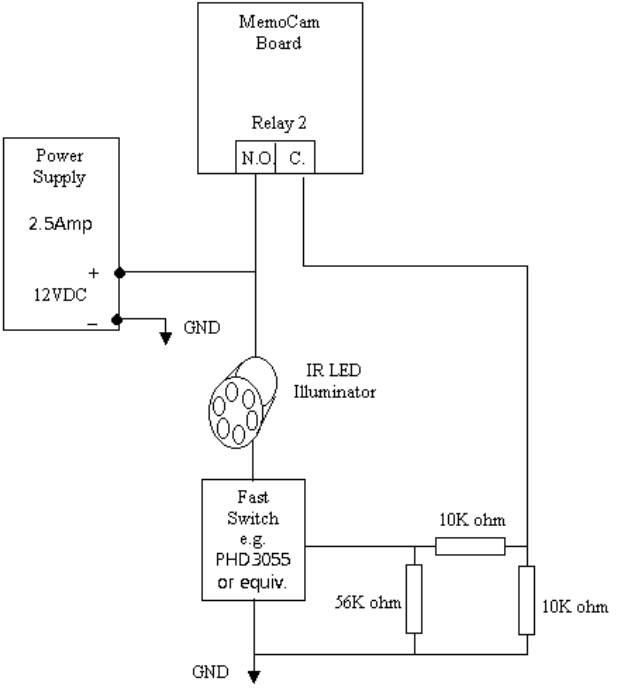
MemoCam Zorro features a programmable output relay (relay 2) enabling you to connect

a step-up power relay that can turn on a light bulb via the mains, or an IR Led.

You program the output relay to turn on the light for the duration of the recording event.

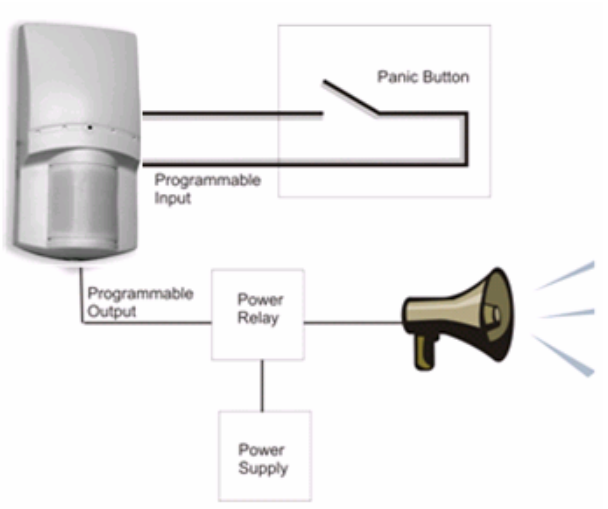


You can also use IR LEDs as shown below.



Siren

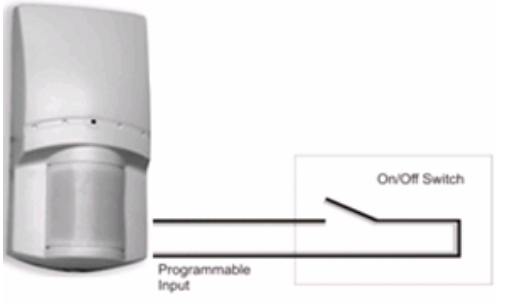
You can connect a MemoCam Zorro unit to a siren for sounding an alarm. This is done via the programmable output relay. The figure below shows a unit connected to a siren. In this example, the unit can be configured to sound the siren whenever the unit is triggered.



Arm/Disarm Control

You can control the arming and disarming of your MemoCam Zorro unit/s by using any of the following:

- **The remote control**: you can arm or disarm the MemoCam unit manually, using the remote control.
- **The internal scheduler:** that is part of the MemoCam Application Software
- **An external control**: you can connect an on/off switch or an alarm control panel to one of the programmable input interfaces as shown below.



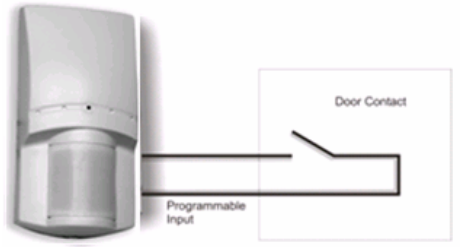
External Contact

You can control the triggering of snapshots or video recording **also** by using an external contact.

When video events are triggered, the unit records the entire event on the removable mini SD card.

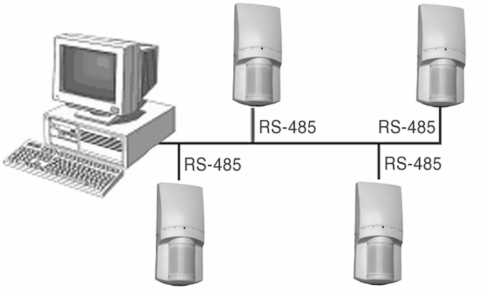
The figure below shows how to connect the MemoCam Zorro unit/s to a magnet operated door contact.

Instead of the door contact you can use an ON/OFF switch, a panic button, an external PIR etc.)



Communication with a Host

The MemoCam Zorro unit features a serial communication port for connecting to a host. The figure below shows four Zorro units connected to a host PC.



Tamper Detection

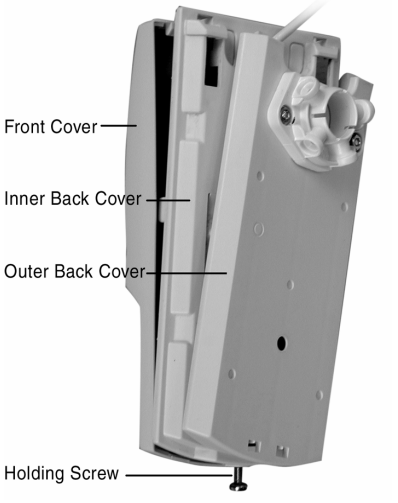
The MemoCam Zorro unit features a tamper detection switch that can be monitored by an external device only if the unit is connected to serial connection.

See Figure 8 on page 18 to find the tamper switch on the circuit board.

2.6 Connecting Any Add-On Device

The unit consists of 3 parts:

- ❑ Front cover.
- ❑ Inner back cover holding the electronic components and cable connectors.
- ❑ Outer back cover where the base of the swivel bracket is attached.



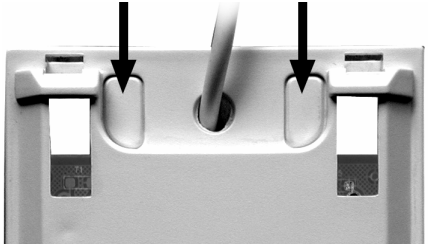
You can connect any external device by connecting each wire of the external device's connection cable, to the appropriate interface on the MemoCam Zorro circuit board.

See Figure 8 on page 18

♦ **To connect the cables:**

1. Open the unit by loosening the holding screw on the bottom end of the unit.

2. Punch out access holes in inner back cover for routing the wiring into the unit, according to the figure below.

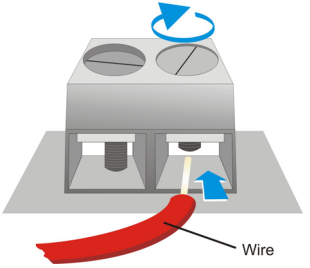


3. Insert the external wires through the access holes.

4. Connect the wires to the appropriate terminal block connectors, ensuring that the wires are tightly held.

See Figure 8 on page 18.

For a description of the connectors and their general uses, see Table 1 and Table 2 on page 20.



6. Replace the unit covers and tighten the holding screw.

Connecting an External Monitor

- **To connect an external monitor to MemoCam Zorro:**

1. Use the Video Output cable provided.
2. Connect the 2-pin connector at one end of the cable to J2 (the black wire points to the left).
3. Plug the external monitor into the BNC connector at the other end of the cable.

Connecting a Light, IR Illuminator, or Siren

To connect a light, IR illuminator or siren:

- ❑ Connect the Zorro unit via a power relay to the programmable output relay interface - **RELAY 2 N.O** on circuit board.

  See *Software Application User Guide* (on CD provided) for configuring Relay 2 when using an IR Illuminator.

Connecting an Arm/Disarm Control

You can connect an arm/disarm control to Zorro unit either directly to the input connector, or via an alarm control panel.

- ❑ You can designate one of the programmable inputs as an arm/disarm control (**IN1, IN2**, and **IN3** on the circuit board).

  See *Software Application User Guide* (on CD provided) for configuring the inputs.

Connecting an External Contact

You can connect an external contact, such as a magnetic door contact, a panic button or an External PIR, as a trigger.

- ❑ Connect the contact directly to one of the programmable input interfaces: **IN1**, **IN2** or **IN3** and one of the **GND** interfaces.

2.7 MemoCam® Zorro Series Circuit Board

The MemoCam Zorro series circuit board locations are shown in Figure 8 below.

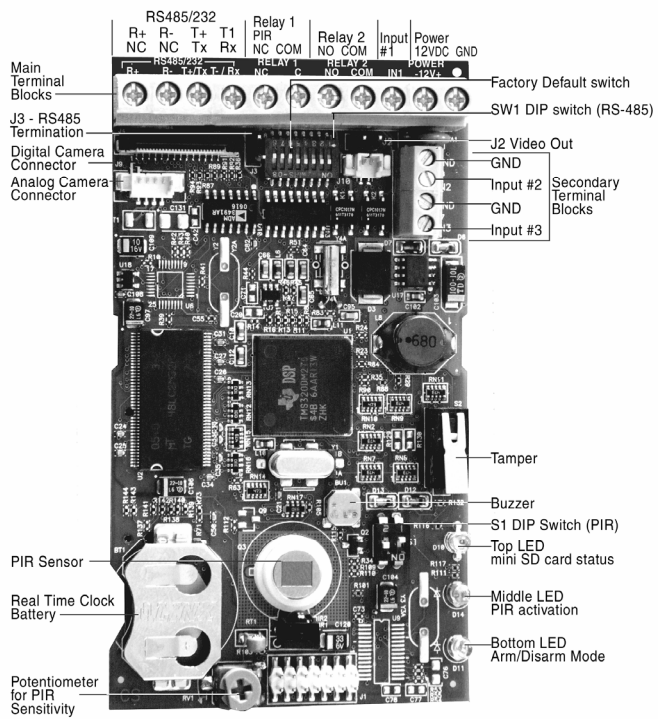


Figure 8: MemoCam Zorro Circuit Board

MemoCam Zorro Circuit Board Locations

Table 1: Main Terminal Block Connections

Interface	Description
POWER CONNECTIONS	**+12V** Connects to the positive output of the 12Vpower supply. **GND-** Common power supply ground.
IN1	**Programmable Input.** Connects to an auxiliary device for external alarm triggers or arm/disarm control. **External Alarm Input.** Connects to an auxiliary device for external alarm triggers. Use with GND-MAIN (Pin 2)
RELAY 2 S/W N.O	**Programmable Output Relay.** This relay is software-activated. When tripped, the N.O. relay contact closes for a pre-defined period (0-999 s) that is user selectable. Used to switch on an external device such as a video recorder, light or siren.
RELAY 1 PIR N.C	**PIR Detector Output Relay.** This relay is activated by the PIR, and can be used to activate an external alarm device. When triggered by detected movement, the relay N.C. contact opens for 1.6 seconds (standard).
RS-485 PORT	**Serial Communication Port.** Connects to a host using R+, R-, T+ and T- terminal blocks.

Table 2: Secondary Terminal Blocks Connections

Interface	Description
IN2 and GND	**Programmable Input** Connects to an auxiliary device for external alarm triggers or arm/disarm control. **Arm/Disarm Input**. Connects to an auxiliary device, such as control panel for arm/disarm control.
IN3 and GND	**Programmable Input**. Connects to an auxiliary device for external alarm triggers or arm/disarm control. **Arm/Disarm Input**. Connects to an auxiliary device, such as control panel for arm/disarm control.

PIR DIP Switch (SW1)

Table 3 describes the PIR DIP switch settings

Table 3: PIR DIP Switch

Switch No.	Description
1	Pulse count settings, provides PIR control for normal to high risk operating environments. Default setting is **OFF.**
2	LED On/Off settings. See Table 6 on page 33.

PIR Sensitivity (RV1)

Use the potentiometer to adjust the detection sensitivity between 40% and 100%. To increase sensitivity, rotate the potentiometer counter-clockwise. To decrease sensitivity, rotate the potentiometer clockwise. The default setting is 70%.

J2 Video Out

J2 connects to an external video monitor.

See *External Monitor* on page 11.

SW1 DIP Switch (RS-485)

Table 4: SW1 DIP Switch (RS-485)

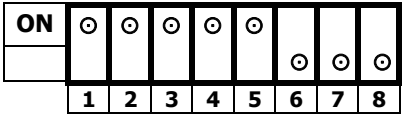
Switch No.	Description
1	RS-485 DIP switch address settings You can connect up to 32 units (0 -31) Factory default address is "00" (zero) and the switches 1 to 5 are in the **ON** position
2	
3	
4	
5	
6	Reserved
7	Both **ON** (half duplex) RS-485 2 wire
8	Both **OFF** (full duplex) RS-485 4 wire

Factory Default SW1 DIP Switch (RS-485) Settings

The DIP switches are located on the top of the board with only the **ON** position marked on the DIP switch assembly.

The DIP switches are shown below in the ON position, therefore the address in switch positions 1 to 5 is 00 (zero).

The unit is shipped with the following configuration:



J3 - RS-485 Termination

Jumper J3 is used for terminating the interface and must be installed in the last unit on the interface.

See *Setting the Termination Jumper* on page 23.

Factory Default Interface Settings

- ❑ Address switches all **OFF** (0).
- ❑ Full duplex (DIP SW2 positions 7 and 8 **OFF**).
- ❑ Line termination enabled (Jumper J3 installed) See Figure 8 on page 18.

2.8 Connecting Multiple Zorro Units to a Host

This section describes how to implement serial communication on one or more MemoCam units to a host. You can connect the units in **FULL** or in **HALF** duplex.

Setting Up an RS-485 Connection

1. Allocate an RS-485 address to the MemoCam Zorro unit.

   Each unit on a parallel RS-485 line must be given a unique address.

   See *Allocating an RS-485 Address* on page 22.

2. Set the termination jumper.

   See *Setting the Termination Jumper* on page 23.

3. Connect the RS-485 interface.

   See *Connecting the RS-485 Interface on page 23*.

Allocating an RS-485 Address

The RS-485 address range is 0-31. You can install up to 32 MemoCam units on the same line. On the MemoCam Zorro circuit board, there are five DIP switches to define the RS-485 address of the unit.

Refer to Figure 8 on page 18 for the location of the DIP switches.

Use Table 5 on page 25 for the DIP address switch combinations.

*Do not change the position of DIP switch 6. It should always be in the **down** (OFF) position.*

Setting the Termination Jumper

Jumper J3 is used for terminating the interface and must be installed in the last unit on the interface.

When a single unit is installed on the interface, this jumper must be installed. In all other units, this jumper must be removed.

For the location of the J3 jumper see Figure 8 on page 18.

Connecting the RS-485 Interface

Full Duplex Connection

1. Set the interface address.

   See *Allocating an RS-485 Address*.

2. Using Figure 9 as a guide, connect the RS-485 interface wires between the units.

   Ensure that DIP SW1 positions 7 and 8 are set to **OFF** (default **OFF**).

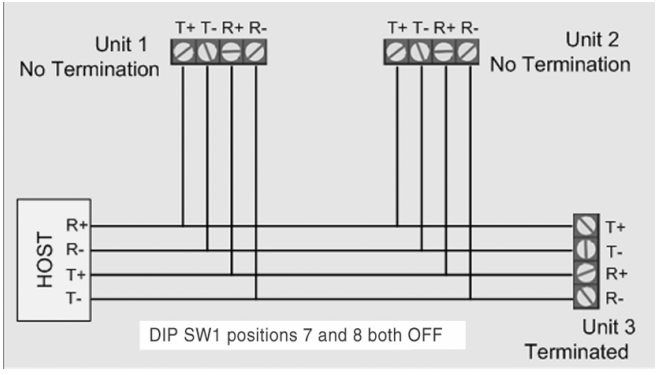


Figure 9: RS-485 as Full Duplex

Half Duplex Connection

1. Set the interface address.

   See *Allocating an RS-485 Address*.

2. Using Figure 10 below as a guide, connect the RS-485 interface wires as shown between the units.

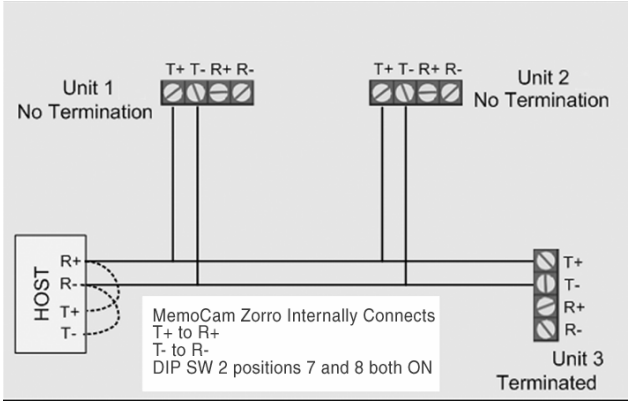


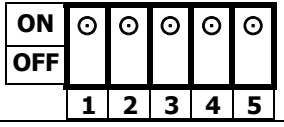
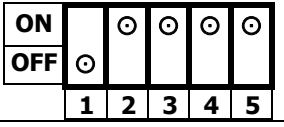
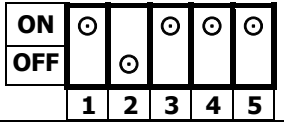
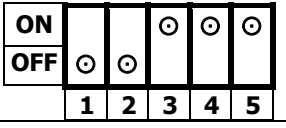
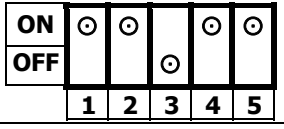
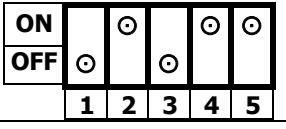
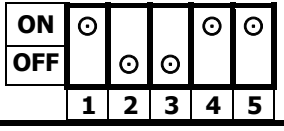
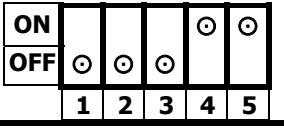
Figure 10: RS-485 as Half Duplex

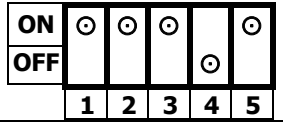
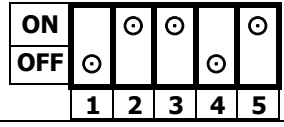
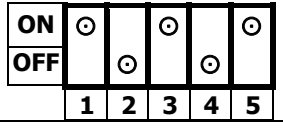
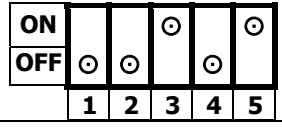
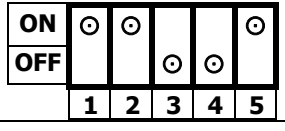
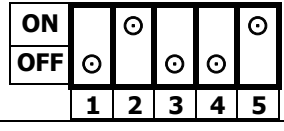
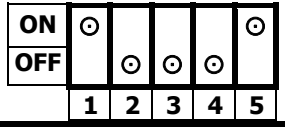
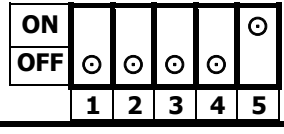
3. Ensure that DIP SW2 positions 7 and 8 are set to **ON** (default **OFF**).

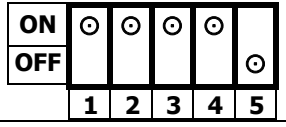
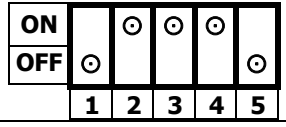
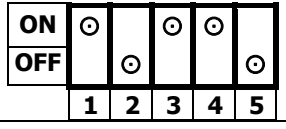
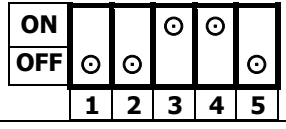
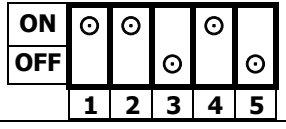
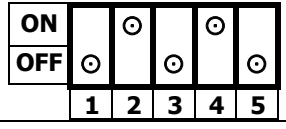
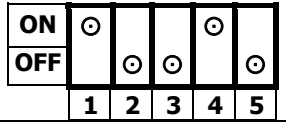
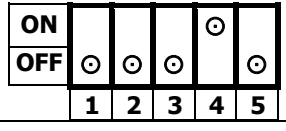
   When these DIP switches are ON, the interface lines are automatically connected as shown in Figure 10. This connects R - to T - and R + to T +, forcing the interface to work in half-duplex mode.

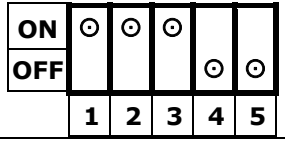
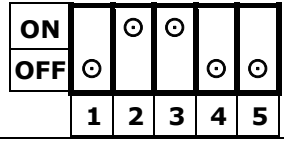
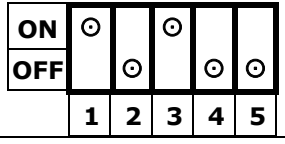
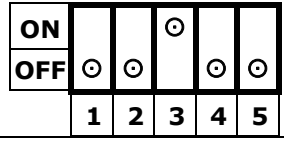
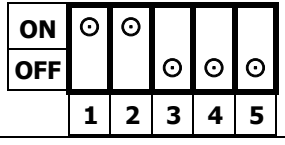
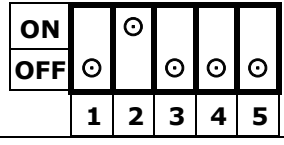
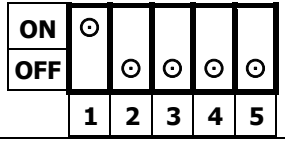
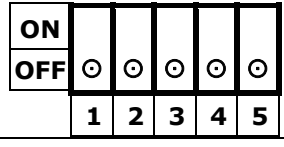
4. Jumper the RS-485 output terminals at the Host as shown in Figure 10, if required.

Table 5: RS-485 Address Table

Unit ID	DIP Switch Settings (OFF is Active)	Unit ID	DIP Switch Settings (OFF is Active)
0 Factory Default		1	
2		3	
4		5	
6		7	

Unit ID	DIP Switch Settings (OFF is Active)	Unit ID	DIP Switch Settings (OFF is Active)
8		9	
10		11	
12		13	
14		15	

Unit ID	DIP Switch Settings (OFF is Active)	Unit ID	DIP Switch Settings (OFF is Active)
16		17	
18		19	
20		21	
22		23	

Unit ID	DIP Switch Settings (OFF is Active)	Unit ID	DIP Switch Settings (OFF is Active)
24		25	
26		27	
28		29	
30		31	

3 Operating MemoCam Zorro®

This chapter describes:

- Operating the unit using the IR Remote Control
- The LED indicators
- The Sound Signals emitted by the unit.
- Using the mini SD card
- Establishing Image Integrity
- Changing Unit Date / Time
- Setting Firmware to Factory Default

3.1 Using the IR Remote Control

You can use the remote control device provided with the MemoCam Zorro to:

- Arm the unit
- Disarm the unit
- Record a snapshot

In an emergency it can also be used as a **panic button**.

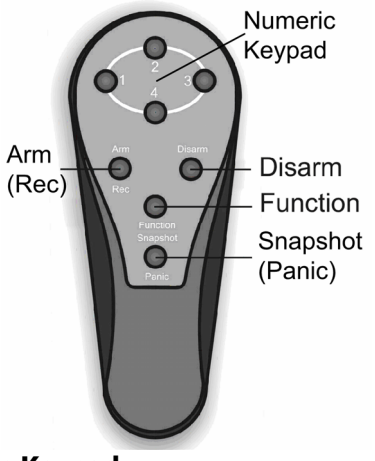
The remote control works best when pointed directly at the front of the unit.

Before using the remote control, ensure that new AAA batteries provided with the unit are installed.

Keypad Description

The keypad is divided into 2 sections. The top section contains the **Numeric buttons** for entering the codes.

The bottom section contains the buttons for performing the various actions described below.



Numeric Keypad

These buttons, 1 – 4, are used to enter the arm and disarm codes. **Default code - 1234**.

Arm, Disarm and Snapshot buttons

These actions are denoted in **white** above the buttons. Press the button to perform the action.

Arming the unit enables the Notification on Alarm (NOA) function. Disarming the unit disables the NOA function.

Record and Panic buttons

These actions are denoted in **blue** below the buttons

To perform the **Record** and **Panic** actions you must first press the **Function** button and then immediately afterwards press the **Record** or **Panic** button (also below the key in blue).

The panic button action can be done in both armed and disarmed modes.

Arming the Unit

- **To arm the unit using the remote control:**

1. Make sure the MemoCam Zorro unit is powered, and the mini SD card is inserted.
2. Point the remote control at the MemoCam Zorro unit and press the **Arm** button.

   The unit beeps once and the Arm Mode (bottom) LED lights orange to inform you that the unit is now armed.

   A user-defined exit delay enables you several seconds to exit the premises before the MemoCam Zorro detector arms the system.

You can also arm the unit using the mini SD card, or use the scheduler for Zorro to arm itself at specific times.

This is described in the *Software Application User Guide* (on the CD provided). See the section on **Exit Delay**.

Disarming the Unit

- **To disarm the unit using the remote control:**

1. Point the remote control at the MemoCam Zorro unit and enter the disarm code using the four digit buttons.

   To define a disarm code, see the *Software Application User Guide* (CD provided).

2. Press the **Disarm** button.

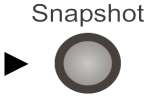
   The unit beeps three times and the **Arm Mode** (right) LED turns off to inform you that the unit is now disarmed.

This is described in the *Software Application User Guide* (on the CD provided). See the section on **Exit Delay**.

Recording a Snapshot

You can use the remote control to record a snapshot at any given moment.

- **To record a snapshot using the remote control:**



1. Make sure that the MemoCam Zorro unit is in **Disarm** mode, and the mini SD card is inserted.
2. Point the remote control at the unit and press the **SNAPSHOT** button. The mini SD card Status (top) LED blinks green informing you that an image is being recorded.

Using the Panic Function

Can only be used when the RS-485 is enabled.

Can be used with the unit in arm or disarm mode.

- **To use the remote control as a panic button:**

- ❑ Point the remote control at the unit and press the **Function** button and then immediately the **Panic** button.

Using the Record Function

Only used when the RS-485 is enabled, when you want to arm the unit without activating the Notification on Alarm function.

- **To use the Record Function**

1. Make sure that the MemoCam Zorro unit is in **Disarm** mode, and the mini SD card is inserted.
2. Point the remote control at the unit and press the **Function** button and then immediately the **REC** button.

   The mini SD card Status (top) LED blinks green informing you that images are being recorded.

3.2 LED Indicators

The MemoCam Zorro unit indicates actions and errors using the three LED status indicators on the front panel. See Figure 2 on page 6.

Table 6: LED Indications

LED	Color	Description
Mini SD Card Status (Top)	Red	Mini SD card is faulty or not inserted correctly
	Blinking Green	Data is being written to the mini SD card
	Orange	Mini SD card full
PIR Activation (Middle)	Flashing Red	Movement detected
Arm/Disarm Mode (Bottom)	Orange	ARM mode
	None	DISARM mode

PIR LED indicator can be enabled or disabled by on board switch. See the Software Installation Manual (on the CD provided).

1.3 Sound Signals

MemoCam Zorro emits a sound signal when you use the remote control for certain actions, or when the unit status has changed.

Table 7: Audible Signals for Remote Control

Using the Remote Control	
Action	**Signal**
Arm the unit	Long beep
Enter a disarm code	Short beep after each number key is pressed
Disarm the unit	Two short beeps and one long beep

Table 8: Audible Signals for Status Change

Change in Unit Status	
Status	**Signal**
Disarm mode	Recurring short beep
Mini SD card is not inserted	Recurring short beep
The configuration has been upgraded by inserting a mini SD card with upgraded configuration	One short beep
Unit returned to default configuration because the registry is corrupted	Three short beeps

Sound signals can be enabled or disabled. See the MemoCam Application User Guide (on CD provided).

3.3 How to Use the Mini SD Card

Inserting the Mini SD card

1. Ensure that the unit is powered on.
1. Insert the mini SD card into the card slot on the left-hand side of the unit with the notched corner on the top left.
2. Gently push the mini SD card as far as will go so that it locks into position.

Removing the Mini SD card

1. Ensure that the unit is disarmed.
2. Gently push the mini SD card further into the card slot and then release your finger.

   The mini SD card is unlocked and you can remove it.

Formatting the Mini SD Card

The mini SD card that comes with the MemoCam Zorro unit is already formatted.

In case you are using a mini SD card that does not come from the MemoCam Zorro manufacturer, the MemoCam Zorro unit will automatically format the mini SD card:

1. Insert the mini SD card into the unit.

   See *Inserting the Mini SD card* on page 34.

2. When the mini SD card Status LED (top) turns off, the card is formatted.

3.4 Establishing Image Integrity

Images can be digitally verified for integrity. This could ensure their admissibility in a court of law. This is explained in the *MemoCam Application User Guide* (on the CD provided).

3.5 Changing the Unit Date/Time

Each unit leaves the factory with the unit clock set to GMT (Greenwich Mean Time) and the correct date. To change the unit date and time, see the *MemoCam Application User Guide* (on the CD provided).

3.6 Resetting Firmware to Factory Default

To restore unit firmware to factory default:

1. Disconnect unit from power.
2. Move Factory Default Switch (dip switch 6) **up** to the **ON** position.
3. Reconnect unit to power.

4. **Immediately** after you have reconnected unit power, return DIP switch 6 back to the **OFF** position (down). You have a few seconds to do this.
5. When the unit is reset successfully to the factory default, it will give 3 rapid beeps.
6. Restart the unit by disconnecting it from power and then reconnecting it to power.

*If you do not return the Factory Default switch to the **OFF** position in time, the unit will not reset to factory default.*

4 Installing MemoCam® Application

Before you install the MemoCam Application software, make sure your computer or Pocket PC meets the following system requirements.

PC Minimum Requirements

CPU	Pentium III 800MHz or higher
RAM	512MB or higher
Graphic adapter	Super VGA or higher
Display resolution	640x480, 32000 colors or higher
Operating systems	Windows ME, 2000, NT, XP or VISTA with Internet Explorer™ 5.0 or higher
Mini SD card Reader	

Pocket PC Minimum Requirements

CPU	ARM (or compatible)
RAM	16MB or higher
Display resolution	320x240, 16 bit colors/256 gray level or higher
Operating systems	Windows CE 3.0 or higher
Mini SD card Reader	

4.1 Installing MemoCam® Application on Your PC

Before beginning the installation, close all Windows programs you have running.

♦ To install the MemoCam software:

1. Insert the CD provided into the CD-ROM drive.

   The *CD Browser* screen is displayed automatically. If the *CD Browser* screen does not open automatically, open Windows Explorer, browse to the CD-ROM drive, and double-click **MCBrowse.exe**.

2. Go to **Installation Tools** and click the **MemoCam Software Application** button.

3. Click the **Next** button.

   The **License Agreement** screen opens.

4. Click the **Yes** button.

   You accept the License Agreement terms. The **Destination Location** screen opens, indicating where the program will be installed.

5. If you want to change the folder location, click the **Browse** button.

   OR

   To continue, click the **Next** *button*.

   The MemoCam files are installed and the **Setup Complete** screen opens.

6. Restart your computer in order to use the newly installed program.

   Select the **Restart** option and click the **Finish** button.

   Your computer is automatically restarted. For more information, see the *MemoCam Application User Guide* (on CD provided).

4.2 Installing MemoCam® Application on Your Pocket PC

Before installing the MemoCam software for your Pocket PC, install and configure the MemoCam software on your PC. For information on installing the MemoCam software on your Pocket PC, refer to the *MemoCam® Pocket PC Player User Guide* (on CD provided) under **MemoCam Accessories**.

To install the mini SD card Reader on your computer, refer to the documentation supplied with the mini SD card Reader.

5 Configuring the MemoCam®Zorro Unit

The MemoCam Zorro unit has default configuration settings that allow for immediate use upon initial installation.

You can also customize the MemoCam Zorro configuration using the removable mini SD card and MemoCam software provided with your Unit.

Requirements for Using the Mini SD Card to Configure the Unit

1. A PC with the MemoCam Application software installed.
2. A mini SD card reader (off-the-shelf).

5.1 Using the Mini SD Card to Change the Unit Configuration

♦ **To configure the MemoCam Zorro unit:**

1. Connect your mini SD card reader to the USB port of your PC.
2. Insert the mini SD card into the card reader.
3. Use the MemoCam software to set the configuration parameters on the mini SD card.

   See the *MemoCam Application User guide* (on CD provided) for details of how to use the MemoCam Application.

Updating the MemoCam® Zorro Unit Configuration

After using the MemoCam software to change the configuration settings on the mini SD card, you can update the configuration of the unit. This is done by inserting the mini SD card into the card slot on the left side of the MemoCam Zorro unit.

See also *Inserting the Mini SD card* on page 34.

If the configuration on the mini SD card is different from the previous configuration of the MemoCam Zorro unit, the unit beeps. The configuration is automatically updated.

For detailed configuration information, refer to the *MemoCam Application User Guide* (on CD provided).

The MemoCam unit has an internal clock. To configure the date and time, refer to the MemoCam Application User Guide (on CD provided).

6 Viewing the Images

This section describes how to view MemoCam Zorro images. For detailed information about all of MemoCam Zorro's many features, refer to the MemoCam Application User Guide (on CD provided).

♦ **To view the recorded images:**

If your MemoCam Zorro is connected directly to your computer through the serial port, proceed directly to Step 4.

1. Disarm the MemoCam Zorro unit.

   See on page 31.

2. Remove the mini SD card from the MemoCam Zorro unit. See *Removing the Mini SD card* on page 35

3. Insert the mini SD card into the card reader attached to your computer or Pocket PC.

4. On your desktop, click the

icon to open the MemoCam software.

   The MemoCam window opens, displaying thumbnails of the images stored on the mini SD card. See Figure 11 on page 43.

If there is no mini SD card in the reader, the MemoCam Application opens a file containing sample images.

6.1 Viewing the Image List

You can view the Image List displayed in the MemoCam window as:

Images Thumbnails

- **To display the Images as thumbnails:**

  - Click the Thumbnails icon

    OR

    Open the **View** menu and click **Thumbnails**. See Figure 11 below.

A Detailed List

- **To display the Images as detailed list:**

  - Click the Details icon.

    OR

    Open the **View** menu and click **Details**. See Figure 13 below

For more information, refer to the *MemoCam Application User Guide* (on the CD provided).

If you are using a PC, the thumbnails view is shown below.

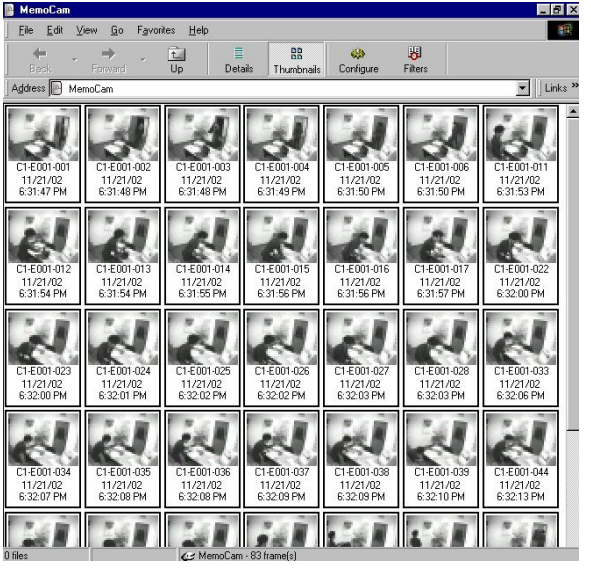


Figure 11: Thumbnails View – PC

If you are using a Pocket PC, the thumbnails view is shown below.

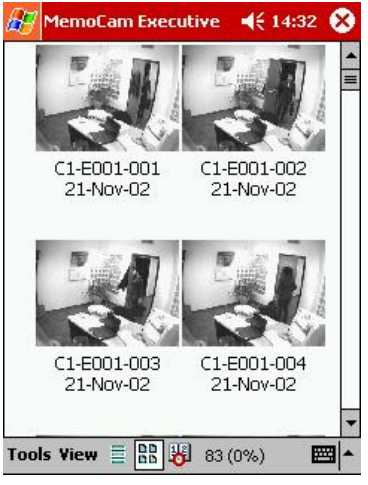


Figure 12: Thumbnails View – Pocket PC

If you are using a PC, the detailed list view appears as shown in Figure 13.

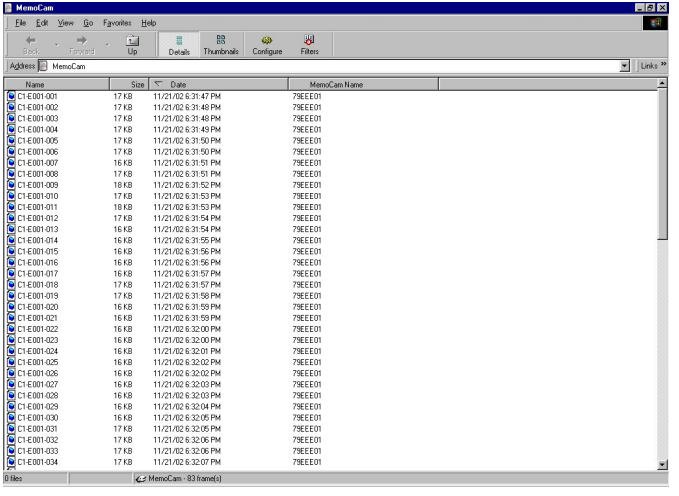


Figure 13: Detailed List View – PC

If you are using a Pocket PC, the detailed list view is shown below.

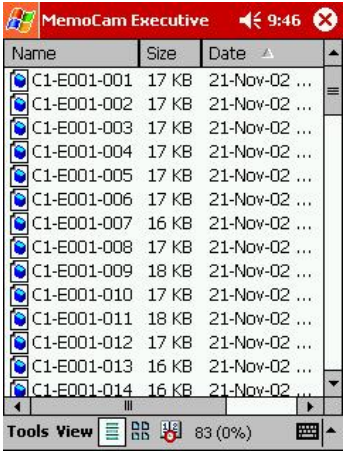


Figure 14: Detailed List View – Pocket PC

6.2 Playing the Images

You can view images consecutively in the MemoCam Image Viewer. The images are played in the order they appear in the Image List. A toolbar to control the viewing of images appears on the top of the window.

♦ **To play images:**

- ❑ Double-click an image in the list.
  OR
  Select an image in the list.
- ❑ Right-click on selected image with the mouse and select **Play**.

Figure 15: Image in MemoCam Image Viewer

The MemoCam Image Viewer toolbar contains the following buttons:

Button	Description
	Plays the images backward.
	Plays the images forward.
	Pauses the playing of images.
	Displays the current image in your PC's default viewer.
	Displays the previous image.
	Displays the next image.
	Checks the image integrity. Enter the integrity key or load the key from a file. For more information, refer to the *MemoCam Software Manual*.
	Adjusts the speed at which the images are displayed.

7 Testing the Installation

This section describes how to check that the unit was installed successfully and is operating correctly.
You will require a mini SD card reader attached to your PC/Pocket PC.

♦ **To check:**

1. Ensure that the mini SD card is inserted in the MemoCam Zorro unit.

   See *Inserting the Mini SD card* on page 34.

2. Disarm MemoCam Zorro unit.

   See *Disarming the Unit* on page 31.

3. Point the remote control at the unit and press the **SNAPSHOT** button.

   The mini SD card status (top) LED blinks green.

4. Remove the mini SD card from the unit.

   See *Removing the Mini SD card* on page 35.

5. Insert the mini SD card into the mini SD card reader attached to your PC/Pocket PC.

6. View the images.

   See *Viewing the Images* on page 42.

7. If you encounter any problems while checking the unit, see *Troubleshooting* on page 48, or the *MemoCam Application User Guide* (on CD provided).

8 Troubleshooting

Use the following table to troubleshoot your MemoCam Zorro unit. Should you require further assistance or support in using MemoCam Zorro, please contact your local dealer.

Problem	Symptom	Solution
Unit does not work.	Impossible to operate unit, top LED does not glow, and PIR LED (middle) does not blink.	Check power supply and power cable.
The MemoCam Zorro unit does not record even though a mini SD card is inserted in the unit.	Top red LED remains illuminated when the mini SD card is inserted into the unit. The unit does not recognize the mini SD card.	1. Remove the mini SD card from the unit. 2. Ensure the mini SD card is not Read Only 3. Re-power the unit. 4. Insert the card back into the unit. After a few seconds, the top red LED should go off. 5. Arm the unit and make sure the top LED flashes green when new images are recorded on the mini SD card.
Remote control does not work.	Unit does not arm and other remote control functions do not work. No beeping.	Check remote control batteries. Make sure the mini SD card is inserted in the unit.

Problem	Symptom	Solution
Cannot arm unit using remote control.		Unit may already be armed. Try to disarm the unit first. Make sure the mini SD card is inserted in the unit.
Cannot disarm unit using remote control.		Unit may already be disarmed, or you may not be disarming the unit properly. Enter the disarm code and then click the disarm button. Check that the code is correct. When an input is configured for arm/disarm control panel and is in the armed state, you cannot disarm the unit using the remote control.
Cannot record an image using the remote control.		Ensure that the unit is disarmed. You cannot use snapshot recording when system is armed.
MemoCam application does not correctly read the mini SD card.	You receive error messages.	Check that the mini SD card is inserted correctly into the card reader. Try restarting the MemoCam application.
MemoCam application does not start correctly.		Check that you installed the application as described in the manual. If not, reinstall the application.

Problem	Symptom	Solution
You receive error messages while working with MemoCam application.		Restart the application.
Reader is not installed as additional drive.	You see the mini SD card as A: or B: drive. MemoCam Application works in demo mode.	Edit the **memocam iP.ini** file to force the reader drive as follows: [Source] MMC-Source=a:\ For this solution, refer to the *MemoCam Application User Guide* (on CD provided).
Image is black	The mini SD card player displays a black picture.	Check the video cable connecting the unit to the camera. Check that the camera is powered and the lens is unobstructed.

9 Technical Specifications

Following are the specifications for the various MemoCam Zorro models.

Model	Zorro Mega	Zorro C	Zorro B and Zorro BX
Camera Type	1.2 Megapixel CMOS color pinhole lens 6mm	CCD color pinhole lens 4.3 mm 0.5 Lux	CCD B/W pinhole lens 4.3 mm B: 0.1 Lux BX: 0.003 Lux
Video Format	Digital 8 bits	PAL or NTSC	CCIR or EIA
Camera	Internal camera		
Video Output	NTSC / PAL		
Video Resolution	Mega: 1280 x 960 / 640 x 480 (VGA) / 320 x 240 (CIF) C, B and BX: 640 x 480 (VGA) / 320 x 240 (CIF)		
Recording Quality	5 levels		
Video Compression	JPEG		
Video Motion Detection (VMD)	Yes		

Model	Zorro Mega	Zorro C	Zorro B and Zorro BX
Recording Rate	From 10 images/sec to 1 image/5 min		
Image Size	From 10K to 500K byte		
Storage Type	Removable mini SD card up to 2GB *(as of date of publishing)*. *Please refer to manufacturer website for latest information – www.vdomain.com*		
Recording Modes	Fixed – Records events until the memory card is full		
	Cyclic – Records events continuously overwriting old data when the memory card is full		
	Video Motion and/or PIR Detection		
	Panic button using the IR remote control		
Pre-Alarm Recording	Yes		

Model	Zorro Mega	Zorro C	Zorro B and Zorro BX
Image Protection (Integrity)	Each image is differentially signed and can be authenticated		
Titles	Time/Date/Unit-Name		
Scheduler	Daily & Weekly		
Alarm/Arm/ Disarm Input	3 inputs		
Alarm Output	N/C 28Vdc 0.1A protected with a 20 Ohm resister		
Programmable Output	N/O 28Vdc 0.1A protected with a 20 Ohm resister		
IR Remote Control	Used for: Arming and disarming the unit Emergencies as a panic button		
Security	Password protected		

Model	Zorro Mega	Zorro C	Zorro B and Zorro BX
Internal PIR	Dual element, hard spherical lens. Angle 90°		
Power Source	12 VDC 250mA		
Power Consumption	<3W		
Recovery	Automatic recovery after source power failure		
Audio Indicator	Buzzer		
Operation Status LED's	Two status color LEDs and one power ON PIR indicators		

Model	Zorro Mega	Zorro C	Zorro B and Zorro BX
Rs-485 Port	Yes		
Software Upgradeable	Yes		
Dimensions (WxDxH)	137 x 65 x 49 mm / 5.4 x 2.6 x 1.9 inch		
Weight	340 gm / 12 oz		
Operating Temperature	0° to 50° C / 32° to 122° F		

10 Glossary

Arm	Enables automatic detection and recording function.
Cyclic Recording	Continuous recording. The MemoCam Zorro records over older images from start of the cycle when Mini SD card is full.
Disarm	Disables the automatic detection and recording function.
Entry Delay	Time between first trigger and actual recording (unit is armed). Entry delay can be used when entering a room to avoid event recording until the unit is disarmed.
Event	The recording of one or more images as a result of a trigger.
Exit Delay	Once the operator arms the unit, a delay can be used to avoid event recording when exiting the room.
LED	Light Emitting Diode. An electric component that lights up.
Mini SD card	Secure Digital card. A stamp-sized plastic card containing read/write non-volatile memory.
PIR	Passive Infrared motion detector.
Snapshot	Recording of a single picture.
Trigger	A signal that activates the recording process. Usually generated by an alarm contact.
VMD	Video Motion Detection. A feature that detects changes in video frames.